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Michael S. Kolodesh

44,846

Attorney/Agent mailing application

Reg No

Michael S. Kolodesh

Signature of Attorney/Agent mailing application

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of ::
George C. Dobrin, et al. ::
Serial No. :: Art Unit:
Filed: :: Examiner:
For: METHOD OF MODIFYING A NONWOVEN FIBROUS WEB FOR USE AS A COMPONENT
OF A DISPOSABLE ABSORBENT ARTICLE

P&G Case 7444D

PRELIMINARY AMENDMENT

Commissioner for Patents
Washington, D.C. 20231

This Preliminary Amendment is being filed concurrent with Divisional application of the co-pending parent application USSN 09/274,946, filed March 23, 1999 (which is being allowed) and with the accompanying Information Disclosure Statement.

IN THE SPECIFICATION

Please add the following before the first line of the specification:

--This application is a divisional of co-pending Application Serial No. 09/274,946, filed March 23, 1999.--

IN THE CLAIMS

Please cancel claims 1-20.

Please amend claims 21-30 to read as herewith submitted on a separate page in its clean form in accordance with 37 CFR 1.121(c)(i). A version of the amended claims 21-30 marked up to show changes is also herewith submitted on a separate page in accordance with 37 CFR 1.121(c)(1)(ii). No new matter has been added by the amendments.

REMARKS

This application is a Divisional application of the co-pending parent application USSN 09/274,946, filed March 23, 1999, which is being allowed. After entry of the present preliminary amendment, claims 21-30 are pending.

Support for the amended claims 21-30 can be found in the original claims 1-30.

CONCLUSIONS

Applicants submit that the claims presented by this Preliminary Amendment contain language deemed to be allowable by the Examiner in the parent application. The pending claims 21-30 are in condition for allowance.

Respectfully submitted,

FOR: DOBRIN, ET AL.

By: Michael S. Kolodesh

Michael S. Kolodesh

7 February 2002

Customer No. 27752

AMENDED CLAIM IN CLEAN FORM

SUBMITTED IN ACCORDANCE WITH 37 CFR 1.121(c)(1)

PRELIMINARY AMENDMENT

21. (Amended) A disposable absorbent article that is adapted to be worn, the article including a fluid-pervious topsheet that faces the body of the wearer when the article is worn, a substantially liquid-impervious backsheet that faces away from the body of the wearer when the article is worn, and an absorbent core positioned between the topsheet and the backsheet, wherein the article includes a component having as an element thereof a nonwoven web that has been modified in accordance with the method for modifying a pre-formed, nonwoven fibrous web, said method comprising the steps of:

a. feeding in a web movement direction to a pair of opposed, interengaged forming rolls a substantially untensioned, nonwoven fibrous web having an initial width, an initial thickness, an initial basis weight, an initial low-elongation cross-web extensibility expressed as an initial load to achieve 10% cross-web elongation, an initial intermediate-elongation cross-web extensibility expressed as an initial load to achieve 30% cross-web elongation, an initial cross-web strength, and an initial elongation capability;

b. gripping the web between the interengaged forming rolls at a nip defined by the forming rolls, wherein each forming roll includes a plurality of axially spaced, circumferentially extending, alternating radial teeth and intervening grooves, and wherein the teeth of one roll are opposite from and extend into the grooves of the opposed roll; and

c. modifying the nonwoven web by subjecting the nonwoven web to incremental lateral stretching as the web passes between the interengaged forming rolls and as the rolls rotate in opposite directions, to incrementally stretch the web in a cross-web direction that is substantially perpendicular to the web movement direction and withdrawing the web from between the interengaged forming rolls by applying to the web a tensile withdrawal force that extends in the web movement direction, wherein the resulting modified web has a load to achieve 10% elongation of from about 5% to about 100% of the initial load to achieve 10% elongation, a load to achieve 30% elongation of from about 5% to about 100% of the initial load to achieve 30% elongation, a cross-web strength of from about 10% to about 80% of the initial cross-web strength, and a cross-web elongation capability of from about 105% to about 200% of the initial cross-web elongation capability.

22. (Amended) The disposable absorbent article according to claim 21, wherein the backsheet of the article includes a composite material made in accordance with the steps a., b., and c. of claim 21, and wherein the steps a., b., and c. further include the additional step of joining the nonwoven web in face-to-face relationship with a polymeric film to form a composite material, and

wherein the resulting composite material has an MVTR of from about 500 g/m²/24 hr to about 5000 g/m²/24 hr, has a dynamic impact value of less than about 10 g/m², and has an O₂ permeation rate of from about 2 m³O₂/m²/24 hr. to about 20 m³O₂/m²/24 hr.

23. (Amended) The disposable absorbent article according to claim 22, wherein the polymeric film is a breathable, monolithic film, and wherein the resulting composite material has an MVTR of from about 500 g/m²/24 hr to about 5000 g/m²/24 hr and has a dynamic impact value of less than about 10 g/m².

24. (Amended) A disposable absorbent article that is adapted to be worn, the article including a fluid-pervious topsheet that faces the body of the wearer when the article is worn, a substantially liquid-impervious backsheet that faces away from the body of the wearer when the article is worn, and an absorbent core positioned between the topsheet and the backsheet, wherein the article includes a component having as an element thereof a nonwoven web that has been further modified in accordance with the method for modifying a pre-formed, nonwoven fibrous web, said method comprising the steps of:

a. feeding in a web movement direction to a first pair of opposed, interengaged forming rolls a substantially untensioned, nonwoven fibrous web having an initial width, an initial thickness, an initial basis weight, an initial low-elongation cross-web extensibility expressed as an initial load to achieve 10% cross-web elongation, an initial intermediate-elongation cross-web extensibility expressed as an initial load to achieve 30% cross-web elongation, an initial cross-web strength, and an initial elongation capability;

b. gripping the web between the first pair of interengaged forming rolls at a nip defined by the forming rolls, wherein each forming roll includes a plurality of axially spaced, circumferentially extending, alternating radial teeth and intervening grooves, and wherein the teeth of one roll are opposite from and extend into the grooves of the opposed roll;

c. modifying the nonwoven web by subjecting the nonwoven web to incremental lateral stretching as the web passes between the first pair of interengaged forming rolls and as the rolls rotate in opposite directions, to incrementally stretch the web in a cross-web direction that is substantially perpendicular to the web movement direction and withdrawing the web from between the first pair of interengaged forming rolls by applying to the web a tensile withdrawal force that extends in the web movement direction;

d. feeding in a web movement direction to a second pair of opposed, interengaged forming rolls;

e. gripping the web between the second pair of interengaged forming rolls at a nip defined by the forming rolls, wherein each forming roll includes a plurality of axially spaced, circumferentially extending, alternating radial teeth and intervening grooves, and wherein the teeth of one roll are opposite from and extend into the grooves of the opposed roll; and

f. further modifying the nonwoven web by subjecting the nonwoven web to incremental lateral stretching as the web passes between the second pair of interengaged forming rolls and as the rolls rotate in opposite directions, to incrementally stretch the web in a cross-web direction that is substantially perpendicular to the web movement direction and withdrawing the web from between the second pair of interengaged forming rolls by applying to the web a tensile withdrawal force that extends in the web movement direction, wherein the resulting further modified web has a load to achieve 10% elongation of from about 5% to about 100% of the initial load to achieve 10% elongation, a load to achieve 30% elongation of from about 5% to about 100% of the initial load to achieve 30% elongation, a cross-web strength of from about 10% to about 70% of the initial cross-web strength, and a cross-web elongation capability of from about 105% to about 200% of the initial cross-web elongation capability.

25. (Amended) The disposable absorbent article according to claim 24, wherein the backsheet of the article includes a composite material made in accordance with the steps a. through f. of claim 24, and wherein the steps a. through f. of claim 24 further include the step of joining the modified non-woven web in face-to-face relationship with a polymeric film prior to step e. to form a composite material, and wherein the resulting composite material has an MVTR of from about 500 g H₂O/m²/24 hr to about 5000 g H₂O/m²/24 hr, has a dynamic impact value of less than about 10 g/m², and has an O₂ permeation rate of from about 2 m³O₂/m²/24 hr. to about 20 m³O₂/m²/24 hr.

26. (Amended) The disposable absorbent article according to claim 24, wherein the backsheet of the article includes a composite material made in accordance with the steps a. through f. of claim 24, and wherein the steps a. through f. of claim 24 further include the step of joining the modified non-woven web in face-to-face relationship with a polymeric film prior to step e. to form a composite material, and wherein the polymeric film is a breathable, monolithic film and wherein the resulting composite material has an MVTR of from about 500 g H₂O/m²/24 hr to about 5000 g H₂O/m²/24 hr and has a dynamic impact value of less than about 10 g/m².

27. (Amended) A disposable absorbent article that is adapted to be worn, the article including a fluid-pervious topsheet that faces the body of the wearer when the article is worn, a substantially liquid-impervious backsheet that faces away from the body of the wearer when the article is worn, and a absorbent core positioned between the topsheet and the backsheet, wherein the article includes a component having as an element thereof a composite elastic material that has been made in accordance with the method for forming a composite elastic material having a modified nonwoven component and elastic component, said method comprising the steps of:

a. feeding in a web movement direction to a first pair of opposed, interengaged forming rolls a substantially untensioned, preformed, nonwoven fibrous web having an initial elongation capability;

b. gripping the web between the first pair of interengaged forming rolls at a nip defined by the forming rolls, wherein each forming roll includes a plurality of axially spaced, circumferentially extending, alternating radial teeth and intervening grooves, and wherein the teeth of one roll are opposite from and extend into the grooves of the opposed roll;

c. modifying the nonwoven web by subjecting the nonwoven web to incremental lateral stretching as the web passes between the first pair of interengaged forming rolls and as the rolls rotate in opposite directions, to incrementally stretch the web in a cross-web direction that is substantially perpendicular to the web movement direction and withdrawing the web from between the first pair of interengaged forming rolls by applying to the web a tensile withdrawal force that extends in the web movement direction, wherein the modified web has a cross-web elongation capability of from about 50% to about 200% of the initial cross-web elongation capability; and

d. joining an elastic web to the modified nonwoven web to form a composite elastic material.

28. (Amended) The disposable absorbent according to claim 27, wherein the article includes a component having as an element thereof a composite elastic material that has been made in accordance with the steps a. through d. of claim 27, and wherein the force-to-elongate the resulting composite elastic material at extensions between about 50% and 200% is less than about 40% greater than the force-to-elongate the elastic web alone at extensions between about 50% and 200%.

29. (Amended) The disposable absorbent article according to claim 28, wherein the force-to-elongate the resulting composite elastic material at extensions between about 50% and 200% is less than about 600 g/in.

30. (Amended) The disposable absorbent according to claim 28, wherein the article includes a component having as an element thereof a composite elastic material, which is breathable.

AMENDED CLAIM MARKED UP TO SHOW CHANGES

SUBMITTED IN ACCORDANCE WITH 37 CFR 1.121(c)(1)(ii)

PRELIMINARY AMENDMENT

21. (Amended) A disposable absorbent article that is adapted to be worn, the article including a fluid-pervious topsheet that faces the body of the wearer when the article is worn, a substantially liquid-impervious backsheet that faces away from the body of the wearer when the article is worn, and an absorbent core positioned between the topsheet and the backsheet, wherein the article includes a component having as an element thereof a nonwoven web that has been modified in accordance with the method set forth in claim 1 for modifying a pre-formed, nonwoven fibrous web, said method comprising the steps of:

- a. feeding in a web movement direction to a pair of opposed, interengaged forming rolls a substantially untensioned, nonwoven fibrous web having an initial width, an initial thickness, an initial basis weight, an initial low-elongation cross-web extensibility expressed as an initial load to achieve 10% cross-web elongation, an initial intermediate-elongation cross-web extensibility expressed as an initial load to achieve 30% cross-web elongation, an initial cross-web strength, and an initial elongation capability;
- b. gripping the web between the interengaged forming rolls at a nip defined by the forming rolls, wherein each forming roll includes a plurality of axially spaced, circumferentially extending, alternating radial teeth and intervening grooves, and wherein the teeth of one roll are opposite from and extend into the grooves of the opposed roll; and
- c. modifying the nonwoven web by subjecting the nonwoven web to incremental lateral stretching as the web passes between the interengaged forming rolls and as the rolls rotate in opposite directions, to incrementally stretch the web in a cross-web direction that is substantially perpendicular to the web movement direction and withdrawing the web from between the interengaged forming rolls by applying to the web a tensile withdrawal force that extends in the web movement direction, wherein the resulting modified web has a load to achieve 10% elongation of from about 5% to about 100% of the initial load to achieve 10% elongation, a load to achieve 30% elongation of from about 5% to about 100% of the initial load to achieve 30% elongation, a cross-web strength of from about 10% to about 80% of the initial cross-web strength, and a cross-web elongation capability of from about 105% to about 200% of the initial cross-web elongation capability.

22. (Amended) A the disposable absorbent article that is adapted to be worn, the article including a fluid-pervious topsheet that faces the body of the wearer when the article is worn, a substantially liquid-impervious backsheet that faces away from the body of the wearer when the article is worn, and an absorbent core positioned between the topsheet and the backsheet, according to claim 21, wherein the backsheet of the article includes a composite material made in accordance with the method set

forth in claim 8 steps a., b., and c. of claim 21, and wherein the steps a., b., and c. further include the additional step of joining the nonwoven web in face -to face relationship with a polymeric film to form a composite material, and

wherein the resulting composite material has an MVTR of from about 500 g/m²/24 hr to about 5000 g/m²/24 hr, has a dynamic impact value of less than about 10 g/m², and has an O₂ permeation rate of from about 2 m³O₂/m²/24 hr. to about 20 m³O₂/m²/24 hr.

23. (Amended) A the disposable absorbent article that is adapted to be worn, the article including a fluid-pervious topsheet that faces the body of the wearer when the article is worn, a substantially liquid-impervious backsheet that faces away from the body of the wearer when the article is worn, and an absorbent core positioned between the topsheet and the backsheet, according to claim 22, wherein the backsheet of the article includes a composite material made in accordance with the method set forth in claim 10 the polymeric film is a breathable, monolithic film, and wherein the resulting composite material has an MVTR of from about 500 g/m²/24 hr to about 5000 g/m²/24 hr and has a dynamic impact value of less than about 10 g/m².

24. (Amended) A disposable absorbent article that is adapted to be worn, the article including a fluid-pervious topsheet that faces the body of the wearer when the article is worn, a substantially liquid-impervious backsheet that faces away from the body of the wearer when the article is worn, and a absorbent core positioned between the topsheet and the backsheet, wherein the article includes a component having as an element thereof a nonwoven web that has been further modified in accordance with the method set forth in claim 11 for modifying a pre-formed, nonwoven fibrous web, said method comprising the steps of:

a. feeding in a web movement direction to a first pair of opposed, interengaged forming rolls a substantially untensioned, nonwoven fibrous web having an initial width, an initial thickness, an initial basis weight, an initial low-elongation cross-web extensibility expressed as an initial load to achieve 10% cross-web elongation, an initial intermediate-elongation cross-web extensibility expressed as an initial load to achieve 30% cross-web elongation, an initial cross-web strength, and an initial elongation capability;

b. gripping the web between the first pair of interengaged forming rolls at a nip defined by the forming rolls, wherein each forming roll includes a plurality of axially spaced, circumferentially extending, alternating radial teeth and intervening grooves, and wherein the teeth of one roll are opposite from and extend into the grooves of the opposed roll;

c. modifying the nonwoven web by subjecting the nonwoven web to incremental lateral stretching as the web passes between the first pair of interengaged forming rolls and as the rolls rotate in opposite directions, to incrementally stretch the web in a cross-web direction that is substantially perpendicular to the web movement direction and withdrawing the web from between the first pair of

interengaged forming rolls by applying to the web a tensile withdrawal force that extends in the web movement direction;

d. feeding in a web movement direction to a second pair of opposed, interengaged forming rolls;

e. gripping the web between the second pair of interengaged forming rolls at a nip defined by the forming rolls, wherein each forming roll includes a plurality of axially spaced, circumferentially extending, alternating radial teeth and intervening grooves, and wherein the teeth of one roll are opposite from and extend into the grooves of the opposed roll; and

f. further modifying the nonwoven web by subjecting the nonwoven web to incremental lateral stretching as the web passes between the second pair of interengaged forming rolls and as the rolls rotate in opposite directions, to incrementally stretch the web in a cross-web direction that is substantially perpendicular to the web movement direction and withdrawing the web from between the second pair of interengaged forming rolls by applying to the web a tensile withdrawal force that extends in the web movement direction, wherein the resulting further modified web has a load to achieve 10% elongation of from about 5% to about 100% of the initial load to achieve 10% elongation, a load to achieve 30% elongation of from about 5% to about 100% of the initial load to achieve 30% elongation, a cross-web strength of from about 10% to about 70% of the initial cross-web strength, and a cross-web elongation capability of from about 105% to about 200% of the initial cross-web elongation capability.

25. (Amended) A The disposable absorbent article that is adapted to be worn, the article including a fluid pervious topsheet that faces the body of the wearer when the article is worn, a substantially liquid impervious backsheet that faces away from the body of the wearer when the article is worn, and an absorbent core positioned between the topsheet and the backsheet, according to claim 24, wherein the backsheet of the article includes a composite material made in accordance with the method set forth in claim 14 steps a. through f. of claim 24, and wherein the steps a. through f. of claim 24 further include the step of joining the modified non-woven web in face-to-face relationship with a polymeric film prior to step e. to form a composite material, and wherein the resulting composite material has an MVTR of from about 500 g H₂O/m²/24 hr to about 5000 g H₂O/m²/24 hr, has a dynamic impact value of less than about 10 g/m², and has an O₂ permeation rate of from about 2 m³O₂/m²/24 hr. to about 20 m³O₂/m²/24 hr.

26. (Amended) A The disposable absorbent article that is adapted to be worn, the article including a fluid pervious topsheet that faces the body of the wearer when the article is worn, a substantially liquid impervious backsheet that faces away from the body of the wearer when the article is worn, and an absorbent core positioned between the topsheet and the backsheet, according to claim 24, wherein the backsheet of the article includes a composite material made in accordance with the method set forth in claim 16 steps a) through f) of claim 24, and wherein the steps a. through f. of claim 24 further include the step of joining the modified non-woven web in face-to-face relationship with a polymeric film

prior to step e. to form a composite material, and wherein the polymeric film is a breathable, monolithic film and wherein the resulting composite material has an MVTR of from about 500 g H₂O/m²/24 hr to about 5000 g H₂O/m²/24 hr and has a dynamic impact value of less than about 10 g/m².

27. (Amended) A disposable absorbent article that is adapted to be worn, the article including a fluid-pervious topsheet that faces the body of the wearer when the article is worn, a substantially liquid-impervious backsheet that faces away from the body of the wearer when the article is worn, and a absorbent core positioned between the topsheet and the backsheet, wherein the article includes a component having as an element thereof a composite elastic material that has been made in accordance with the method set forth in claim 17 for forming a composite elastic material having a modified nonwoven component and elastic component, said method comprising the steps of:

a. feeding in a web movement direction to a first pair of opposed, interengaged forming rolls a substantially untensioned, preformed, nonwoven fibrous web having an initial elongation capability;

b. gripping the web between the first pair of interengaged forming rolls at a nip defined by the forming rolls, wherein each forming roll includes a plurality of axially spaced, circumferentially extending, alternating radial teeth and intervening grooves, and wherein the teeth of one roll are opposite from and extend into the grooves of the opposed roll;

c. modifying the nonwoven web by subjecting the nonwoven web to incremental lateral stretching as the web passes between the first pair of interengaged forming rolls and as the rolls rotate in opposite directions, to incrementally stretch the web in a cross-web direction that is substantially perpendicular to the web movement direction and withdrawing the web from between the first pair of interengaged forming rolls by applying to the web a tensile withdrawal force that extends in the web movement direction,

wherein the modified web has a cross-web elongation capability of from about 50% to about 200% of the initial cross-web elongation capability; and

d. joining an elastic web to the modified nonwoven web to form a composite elastic material.

28. (Amended) A The disposable absorbent article that is adapted to be worn, the article including a fluid-pervious topsheet that faces the body of the wearer when the article is worn, a substantially liquid-impervious backsheet that faces away from the body of the wearer when the article is worn, and a absorbent core positioned between the topsheet and the backsheet, according to claim 27, wherein the article includes a component having as an element thereof a composite elastic material that has been made in accordance with the method set forth in claim 18 steps a. through d. of claim 27, and wherein the force-to-elongate the resulting composite elastic material at extensions between about 50% and 200% is less

than about 40% greater than the force-to-elongate the elastic web alone at extensions between about 50% and 200%.

29. (Amended) A the disposable absorbent article that is adapted to be worn, the article including a fluid-pervious topsheet that faces the body of the wearer when the article is worn, a substantially liquid-impervious backsheet that faces away from the body of the wearer when the article is worn, and a absorbent core positioned between the topsheet and the backsheet, according to claim 28, wherein the article includes a component having as an element thereof a composite elastic material that has been made in accordance with the method set forth in claim 19 wherein the force-to-elongate the resulting composite elastic material at extensions between about 50% and 200% is less than about 600 g/in.

30. (Amended) A the disposable absorbent article that is adapted to be worn, the article including a fluid-pervious topsheet that faces the body of the wearer when the article is worn, a substantially liquid-impervious backsheet that faces away from the body of the wearer when the article is worn, and a absorbent core positioned between the topsheet and the backsheet, according to claim 28, wherein the article includes a component having as an element thereof a composite elastic material, which is breathable.